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OM protein - protein search, using sw model

Run on: June 25, 2003, 11:48:15 ; Search time 9.92 Seconds

(without alignments)
66.897 Million cell updates/sec

Title: US-09-869-540A-2_COPY_4_19

Perfect score: 95
Sequence: 1 MLCMLGRVYRRCMOV 16

Scoring table: BLOSUM62
Gapop 10.0, Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database: SWISSPROT_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | Query Match | Length | ID | Description |
|------------|-------|-------------|--------|---------------|--------------------|
| 1 | 95 | 100.0 | 165 | 1 MLC_H_HUMAN | P20382 homo sapien |
| 2 | 95 | 100.0 | 165 | 1 MLC_H_HUMAN | P14200 rattus norv |
| 3 | 95 | 100.0 | 166 | 1 MLC_MOUSE | P56842 mus musculu |
| 4 | 82 | 86.3 | 132 | 1 MLC1_ONCR | P19713 oncorhynch |
| 5 | 82 | 86.3 | 132 | 1 MLC1_ONCR | P36943 oncorhynch |
| 6 | 82 | 86.3 | 132 | 1 MLC1_ONCR | P33745 oncorhynch |
| 7 | 82 | 86.3 | 132 | 1 MLC1_ONCR | P17640 oncorhynch |
| 8 | 82 | 86.3 | 132 | 1 MLC2_ONCR | P19714 oncorhynch |
| 9 | 82 | 86.3 | 136 | 1 MLC2_ONCR | P49794 oncorhynch |
| 10 | 72 | 75.8 | 78 | 1 MLC2_ONCR | P16048 homo sapien |
| 11 | 43 | 45.3 | 3206 | 1 POLG_PSBV | P29152 p genome po |
| 12 | 42 | 44.2 | 577 | 1 VGLR_PPRV | P08354 pseudorab |
| 13 | 41.5 | 43.7 | 645 | 1 ZP93_MOUSE | O61116 mus musculu |
| 14 | 41 | 43.2 | 124 | 1 CD59_RABT | O7741 oryctolagus |
| 15 | 41 | 43.2 | 315 | 1 ISM_SHISO | P16944 shigella so |
| 16 | 40.5 | 42.6 | 426 | 1 S6A8_HUMAN | P53796 homo sapien |
| 17 | 40.5 | 42.6 | 635 | 1 S6A8_HUMAN | P48029 homo sapien |
| 18 | 40.5 | 42.6 | 635 | 1 S6A8_RABT | P31661 oryctolagus |
| 19 | 40.5 | 42.6 | 635 | 1 S6A8_RAT | P28570 rattus norv |
| 20 | 40 | 42.1 | 1705 | 1 PRPO_MOUSE | P70289 mus musculu |
| 21 | 40 | 42.1 | 1711 | 1 PRPO_MOUSE | O64612 rattus norv |
| 22 | 39.5 | 41.6 | 635 | 1 S6A8_BOVIN | O18875 bos taurus |
| 23 | 39.5 | 41.6 | 768 | 1 BARI_RAT | O99282 rattus norv |
| 24 | 39.5 | 41.6 | 777 | 1 BARI_HUMAN | O99728 homo sapien |
| 25 | 39 | 41.1 | 110 | 1 OR15_YEAST | P32344 saccharomy |
| 26 | 39 | 41.1 | 170 | 1 HPAC_SALTI | O97922 salmone |
| 27 | 39 | 41.1 | 170 | 1 HPAC_SALTI | O82795 salmone |
| 28 | 39 | 41.1 | 170 | 1 HPAC_SALTI | O82795 salmone |
| 29 | 39 | 41.1 | 173 | 1 CRG2_CYPCA | P10044 cyrtinus ca |
| 30 | 39 | 41.1 | 173 | 1 CRG2_CYPCA | P98161 homo sapien |
| 31 | 38.5 | 40.5 | 189 | 1 INAF_HUMAN | P05015 homo sapien |
| 32 | 38.5 | 40.5 | 189 | 1 INAF_HUMAN | O70445 mus musculu |
| 33 | 38 | 40.0 | 150 | 1 PTVA_ECOLI | P37187 escherichia |

| | | | | | |
|----|----|------|------|--------------|--------------------|
| 34 | 38 | 40.0 | 490 | 1 CPCL_HUMAN | P33260 homo sapien |
| 35 | 38 | 40.0 | 1011 | 1 M3K6_HUMAN | O95382 homo sapien |
| 36 | 38 | 40.0 | 2359 | 1 CCAN_RAT | O9660 rattus norv |
| 37 | 38 | 40.0 | 2365 | 1 CCAN_MOUSE | O88427 mus musculu |
| 38 | 38 | 40.0 | 2373 | 1 CCAN_HUMAN | O95180 homo sapien |
| 39 | 38 | 40.0 | 2390 | 1 SPCP_HUMAN | O15020 homo sapien |
| 40 | 37 | 38.9 | 52 | 1 RELN_BOVIN | O9117 bos taurus |
| 41 | 37 | 38.9 | 126 | 1 CD59_PASP | O28785 papio sp. (|
| 42 | 37 | 38.9 | 128 | 1 CD59_GERAE | O28216 cercopithec |
| 43 | 37 | 38.9 | 404 | 1 H1SX_ARCFU | O30027 archaeglob |
| 44 | 37 | 38.9 | 472 | 1 GLGA_ANASP | O8945 anabaena sp |
| 45 | 37 | 38.9 | 489 | 1 N2M2_MARPO | P26846 marchantia |

ALIGNMENTS

RESULT 1
ID MLC_H_HUMAN STANDARD: PRT, 165 AA.
AC P20382; Q16044;
DT 01-FEB-1991 (Rel. 17, Created)
DT 15-JUL-1999 (Rel. 38, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Pro-MCH precursor [Contains: Neuropeptide-glycine-glutamic acid (NCE)
DE (Neuropeptide G-E); Neuropeptide-glutamic acid-isoleucine (NEI)
DE (Neuropeptide E-I); Melanin-concentrating hormone (MCH)].
GN PMCH OR MCH.
OS Homo sapiens (human).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Carnivora; Homiidae; Homo.
OX NCBI_Taxid=9606;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-Hypothalamus;
RA MEDLINE-9112371; PubMed-2149166;
RA Presse F., Nahon J.-L., Fischer W.H., Vale W.;
RT "Structure of the human melanin concentrating hormone mRNA."
RT Mol. Endocrinol. 4:632-637(1990).
RN [2]
RP SEQUENCE FROM N.A.
RC TISSUE-Breast cancer;
RA MEDLINE-9316802; PubMed-8326825;
RA Breton C., Schorpp M., Nahon J.-L.;
RT "Isolation and characterization of the human melanin-concentrating
RT hormone gene and a variant gene."
RT Brain Res. Mol. Brain Res. 18:297-310(1993).
RN [3]
RP PROCESSING.
RA MEDLINE-9156937; PubMed-10037747;
RA Viale A., Ortolia C., Hervieu G., Furuta M., Barbero P., Steiner D.F.,
RA Seidah N.G., Nahon J.-L.;
RT "Cellular localization and role of pro-hormone convertases in the
RT processing of pro-melanin concentrating hormone in mammals."
RT J. Biol. Chem. 274:6536-6545(1999).
RN [4]
RP TISSUE SPECIFICITY.
RA MEDLINE-97334402; PubMed-9191099;
RA Viale A., Zhixing Y., Breton C., Peduto F., Coquerel A., Jordan D.,
RA Nahon J.-L.;
RT "The melanin-concentrating hormone gene in human: flanking region
RT analysis, fine chromosome mapping, and tissue-specific expression."
RT Brain Res. Mol. Brain Res. 46:243-255(1997).
RN [5]
RP FUNCTION: MCH may act as a neurotransmitter or neuromodulator in a
RP broad array of neuronal functions directed toward the regulation
RP of goal-directed behavior, such as food intake, and general
RP arousal. May also have a role in spermatocyte differentiation.
CC TISSUE SPECIFICITY: PREDOMINANTLY EXPRESSED IN LATERAL
CC HYPOPHALAMUS. ALSO DETECTED IN PALLIDIUM, NEOCORTEX AND
CC CEREBELLUM. ALSO FOUND IN THYMUS, BROWN ADIPOSE TISSUE, DUODENUM
CC AND TESTIS (SPERMATOGENIA, EARLY SPERMATOCYTES AND SEPTOL CELLS).
CC NO EXPRESSION IN PERIPHERAL BLOOD. IN BRAIN EXCLUSIVELY MATURE MCH
CC AND NEI PEPTIDES ARE PRESENT. IN PERIPHERAL TISSUES A LARGE

CC PRODUCT, ENCOMPASSING THE NEI AND MCH DOMAINS OF THE PRECURSOR, IS
 CC FOUND PREDOMINANTLY
 CC -1- PPM: DIFFERENTIALLY PROCESSED IN THE BRAIN AND IN PERIPHERAL
 CC ORGANS PRODUCING TWO NEUROPEPTIDES: NEI AND MCH. A THIRD PEPTIDE,
 CC MCH, MAY ALSO BE PRODUCED. PREFERENTIAL PROCESSING IN NEURONS BY
 CC PHOENOMONE CONVERTASE 2 (PC2) GENERATES NEI. MCH IS GENERATED IN
 CC NEURONS OF THE LATERAL HYPOTHALAMIC AREA BY SEVERAL PHOENOMONE
 CC CONVERTASES INCLUDING PC1/3, PC2 AND PC5/6.
 CC -1- PPM: MCH IS A CYCLIC PEPTIDE.
 CC -1- SIMILARITY: BELONGS TO THE MELANIN-CONCENTRATING HORMONE FAMILY.
 CC -----
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 CC -----
 CC DR EMBL: M57703; AAA63214.1; -
 CC DR EMBL: S63697; AAB27493.1; -
 CC DR PIR: A34551; A34551.
 CC DR Genew: HGNC:9109; PMCH.
 CC DR MIM: 176795; -
 CC KM Cleavage on pair of basic residues; Hormone; Neuropeptide; Signal;
 CC Amidation; Spermatogenesis.
 CC FT SIGNAL 1 21 POTENTIAL.
 CC FT CHAIN 22 165 PRO-MCH.
 CC FT PEPTIDE 110 128 MCH (POTENTIAL).
 CC FT PEPTIDE 131 143 NEI
 CC FT PEPTIDE 147 165 MELANIN-CONCENTRATING HORMONE.
 CC FT MOD_RES 143 143 AMIDATION (G-144 PROVIDE AMIDE GROUP)
 CC FT DISULFID 153 162 (BY SIMILARITY).
 CC FT CONFLICT 42 42 F->S (IN REF. 2).
 CC FT CONFLICT 104 106 F->S (IN REF. 2).
 CC FT CONFLICT 113 113 D->A (IN REF. 2).
 CC SQ SEQUENCE 165 AA; D639B89388637244 CRC64;
 CC
 CC Query Match 100.08; Score 95; DB 1; Length 165;
 CC Best Local Similarity 100.08; Pred. NO. 1.7e-08;
 CC Matches 16; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 CC
 CC Oy 1 MLRCMLGRVYRRCQCV 16
 CC Db 150 MLRCMLGRVYRRCQCV 165
 CC
 CC RESULT 2
 CC MCH_RAT
 CC ID MCH_RAT STANDARD; PRT; 165 AA.
 CC AC P14200;
 CC DT 01-JAN-1990 (Rel. 13, Created)
 CC DT 01-JAN-1990 (Rel. 13, Last sequence update)
 CC DT 15-JUN-2002 (Rel. 41, Last annotation update)
 CC DE Pro-MCH precursor [contains: Neuropeptide-glycine-glutamic acid (NGE)
 CC (Neuropeptide G-E); Neuropeptide-glycine-acid-isoleucine (NEI)
 CC (Neuropeptide E-I); Melanin-concentrating hormone (MCH)].
 CC GN PMCH OR MCH.
 CC OS Rattus norvegicus (Rat).
 CC OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
 CC OX NCBI_TaxID=10116;
 CC RN [1]
 CC RP SEQUENCE FROM N.A.
 CC RC TISSUE-Hypothalamus;
 CC RX MEDLINE=90005146; PubMed=2477226;
 CC RA Nahon J.-L., Presse F., Bittencourt J.C., Sawchenko P.E., Vale W.;
 CC "The rat melanin-concentrating hormone messenger ribonucleic acid
 CC encodes multiple putative neuropeptides coexpressed in the
 CC dorsolateral hypothalamus."
 CC RT Endocrinology 125:2056-2065(1989).
 CC RN [2]

RP SEQUENCE FROM N.A.
 RA MEDLINE=91083836; PubMed=2261081;
 RA Thompson R.C., Watson S.J.;
 RT "Nucleotide sequence and tissue-specific expression of the rat
 RT melanin concentrating hormone gene."
 RL DNA Cell Biol. 9:637-645(1990).
 RP [3]
 RP SEQUENCE OF 147-165.
 RC TISSUE-Hypothalamus;
 RX MEDLINE=89338286; PubMed=2759038;
 RA Vaughan J.M., Fischer W.H., Hoeger C., Rivier J., Vale W.;
 RT "Characterization of melanin-concentrating hormone from rat
 RT hypothalamus."
 RL Endocrinology 125:1660-1665(1989).
 RP [4]
 RP TISSUE SPECIFICITY.
 RC STRAIN-Sprague-Dawley, and Mistar;
 RX MEDLINE=95303246; PubMed=7783849;
 RA Hervieu G., Nahon J.-L.;
 RT "Pro-melanin concentrating hormone messenger ribonucleic acid and
 RT peptides expression in peripheral tissues of the rat."
 RL Neuroendocrinology 61:348-364(1995).
 RP [5]
 RP TISSUE SPECIFICITY.
 RX MEDLINE=96146469; PubMed=8593803;
 RA Hervieu G., Volant K., Grishina O., Desroix-Vagne M., Nahon J.-L.;
 RT "Similarities in cellular expression and functions of melanin-
 RT concentrating hormone and atrial natriuretic factor in the rat
 RT digestive tract."
 RL Endocrinology 137:561-571(1996).
 RP [6]
 RP TISSUE SPECIFICITY.
 RX MEDLINE=95342335; PubMed=7617126;
 RA Takahashi K., Suzuki H., Totsune K., Murakami O., Satoh F., Some M.,
 RA Sasano H., Mouri T., Shibahara S.;
 RT "Melanin-concentrating hormone in human and rat."
 RL Neuroendocrinology 161:493-498(1995).
 RP [7]
 RP PROCESSING, AND AMIDATION OF NEI.
 RX MEDLINE=93010665; PubMed=1327720;
 RA Parkes D., Vale W.;
 RT "Secretion of melanin-concentrating hormone and neuropeptide-EI from
 RT cultured rat hypothalamic cells."
 RL Endocrinology 131:1826-1831(1992).
 RP [8]
 RP PROCESSING.
 RX MEDLINE=99156937; PubMed=10037747;
 RA Viale A., Ortola C., Hervieu G., Furuta M., Barbero P., Steiner D.F.,
 RA Seidah N.G., Nahon J.-L.;
 RT "Cellular localization and role of pro-hormone convertases in the
 RT processing of pro-melanin concentrating hormone in mammals."
 RL J. Biol. Chem. 274:6536-6545(1999).
 RP [9]
 RP FUNCTION OF NEI.
 RX MEDLINE=9535756; PubMed=7647772;
 RA Bluet-Pajot M.T., Presse F., Yoko Z., Hoeger C., Mounier F.,
 RA Epblbaum J., Nahon J.-L.;
 RT "Neuropeptide E-I antagonizes the action of melanin-concentrating
 RT hormone on stress-induced release of adrenocorticotropin in the rat."
 RL J. Neuroendocrinol. 7:297-303(1995).
 RP [10]
 RP FUNCTION OF NEI.
 RX MEDLINE=98366105; PubMed=9700748;
 RA Gonzalez M.I., Baker B.I., Hole D.R., Wilson C.A.;
 RT "Behavioral effects of neuropeptide E-I (NEI) in the female rat:
 RT interactions with alpha-MSH, MCH and dopamine."
 RL Peptides 19:1007-1016(1998).
 RP [11]
 RP FUNCTION OF MCH AND NEI.
 RX MEDLINE=99025517; PubMed=9809645;
 RA Kistler-Heer V., Schlumpf M., Lichtensteiger W.;
 RT "Melanocortin and MCH precursor-derived NEI effects on striatum-
 RT midbrain co-cultures."
 RL

RL Peptides 19:1317-1327(1998).

CC -1- FUNCTION: MCH inhibits acth secretion at the end of the light on

CC period which corresponds to the peak of the circadian rhythm in

CC ACTH. Inhibits also stress induced ACTH release during the light

CC off period of the cycle. Involved as a neurotransmitter or

CC neuromodulator in a broad array of neuronal functions. Stimulates

CC sexual behavior when injected into the ventromedial nucleus, this

CC effect is antagonized by NEI. In the medial preoptic area,

CC stimulates anxiety and sexual behavior. Antagonizes inhibitory

CC effect of melatonin alpha on exploration behavior.

CC -1- FUNCTION: NEI CAN INFLUENCE DIFFERENTIATION OF NEURONAL PROCESSES

CC IN BRAIN NEURONS. AFFECTS THE CONTENT OF NEUROFILAMENT PROTEIN IN

CC NEURITOGENESIS (IN VITRO). MAY ALSO BE A NEUROMODULATOR FACTOR.

CC IN BEHAVIORAL TESTS, IT STIMULATES EXPLORATION AND ANXIETY WHEN

CC INJECTED INTO THE VENTROMEDIAL NUCLEUS. ALSO STIMULATES GROOMING,

CC LOCOMOTION AND REARING. MAY ANTAGONIZE THE INHIBITORY EFFECT OF

CC MCH ON ACTH RELEASE. REDUCES DOPAMINE AND DOPAC RELEASE IN THE

CC VENTROMEDIAL NUCLEUS.

CC -1- TISSUE SPECIFICITY: MCH IS PRESENT IN ALL REGIONS OF THE BRAIN AND

CC IN NEUROINTERMEDIATE LOBE OF THE PITUITARY GLAND, WITH HIGHEST

CC CONCENTRATIONS IN THE HYPOTHALAMUS. ALSO EXPRESSED TO A MUCH

CC LESSER EXTENT IN STOMACH, LAMINA PROPRIA OF BOTH DUODENUM AND

CC COLON, OVARY, THYMUS, PANCREAS, ADRENAL GLAND AND TESTIS

CC (SPERMATOGONIA, EARLY SPERMATOCYTES AND SERTOLI CELLS). WEAK

CC EXPRESSION IN HEART AND LUNG. THE OTHER PEPTIDES ARE EXPRESSED AT

CC LEAST IN SERTOLI CELLS, NEI BEING ALSO EXPRESSED IN BRAIN, STOMACH

CC AND PROXIMAL DUODENUM. IN BRAIN EXCLUSIVELY MATURE MCH AND NEI

CC PEPTIDES ARE PRESENT. IN PERIPHERAL TISSUES A LARGE PRODUCT,

CC ENCOMPASSING THE NEI AND MCH DOMAINS OF THE PRECURSOR, IS FOUND

CC PREDOMINANTLY. AT LOW LEVELS FULLY PROCESSED MCH AND NEI PEPTIDES

CC ARE PRESENT IN GUT. NO EXPRESSION IN PERIPHERAL BLOOD.

CC -1- DEVELOPMENTAL STAGE: EXPRESSION IS STRONGLY INCREASED IN

CC HYPOTHALAMUS BETWEEN POSTNATAL DAYS 12 AND 20, TO REACH HIGH

CC CONSTANT VALUES IN ADULT.

CC -1- INDUCTION: INHIBITED BY NEUROGENIC STRESS OR OSMOTIC STRESS.

CC -1- PTM: PRO-MCH IS PROCESSED DIFFERENTIALLY IN THE BRAIN AND IN

CC PERIPHERAL ORGANS PRODUCING TWO NEUROPEPTIDES: NEI AND MCH. A

CC THIRD PEPTIDE, NGE, MAY ALSO BE PRODUCED. PREFERENTIAL PROCESSING

CC IN NEURONS BY PROHORMONE CONVERTASE 2 (PC2) GENERATES NEI. MCH IS

CC GENERATED IN NEURONS OF THE LATERAL HYPOTHALMIC AREA BY SEVERAL

CC PROHORMONE CONVERTASES INCLUDING PC1/3, PC2 AND PCS/6.

CC -1- PTM: MCH IS A CYCLIC PEPTIDE.

CC -1- SIMILARITY: BELONGS TO THE MELANIN-CONCENTRATING HORMONE FAMILY.

CC

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CC or send an email to license@isb-sib.ch).

CC -----

CC DR EMBL: M29712; AAA41580.1; -

CC DR EMBL: M62641; AAA41581.1; -

CC DR PIR: A36237; A36237.

CC DR PIR: A37407; A37407.

CC KW Cleavage on pair of basic residues; Hormone; Neuropeptide; Signal;

CC KW Amidation.

CC FT SIGNAL 1 21 POTENTIAL.

CC FT CHAIN 22 165 PRO-MCH.

CC FT PEPTIDE 110 128 NGE (POTENTIAL).

CC FT PEPTIDE 131 143 NEI.

CC FT PEPTIDE 147 165 MELANIN-CONCENTRATING HORMONE.

CC FT MOD_RES 143 143 AMIDATION (G-144 PROVIDE AMIDE GROUP).

CC FT DISULFID 153 162 BY SIMILARITY.

CC SO SEQUENCE 165 AA; 18482 MW; 38E9F07693E77A05 CRC64;

Query Match 100.0%; Score 95; DB 1; Length 165;

Best Local Similarity 100.0%; Pred. No. 1,76-08;

Matches 16; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 MRCMGLGRVTRPCMOV 16

|||||

DB 150 MRCMGLGRVTRPCMOV 165

RESULT 3

MCH_MOUSE STANDARD; PRT; 166 AA.

ID MCH_MOUSE

AC P56942;

DT 30-MAY-2000 (Rel. 39, last sequence update)

DT 30-MAY-2000 (Rel. 39, last sequence update)

DT 15-JUN-2002 (Rel. 41, last annotation update)

DE PRO-MCH precursor [Conatus: Neuropeptide glycine-glutamic acid (NGE)

DE (Neuropeptide G-E); Neuropeptide-glutamic acid-isoleucine (NEI)

DE (Neuropeptide E-I); Melanin-concentrating hormone (MCH)].

GN PMCH OR MCH.

OS Mus musculus (Mouse).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

OX NCBI_TaxID=10090;

RN [1]

RP SEQUENCE FROM N.A.

RC STRAIN-BALB/C; TISSUE-Brain;

RA Breton C., Presse F., Hervieu G., Nahon J.-L.;

RT "Structure and regulation of the mouse melanin-concentrating hormone

RT mRNA and gene."

RL Mol. Cell. Neurosci. 4:271-284(1993).

RN [2]

RP PROCESSING.

RX MEDLINE=99156937; Pubmed=10037747;

RA Viale A., Ortolà C., Hervieu G., Furuta M., Barbero P., Steiner D.F.,

RA Seidah N.G., Nahon J.-L.;

RT "Cellular localization and role of prohormone convertases in the

RT processing of pro-melanin concentrating hormone in mammals."

RL J. Biol. Chem. 274:6536-6545(1999).

RN [3]

RP TISSUE SPECIFICITY.

RX MEDLINE=96344052; Pubmed=8724342;

RA Hervieu G., Segretain D., Nahon J.-L.;

RT "Developmental and stage-dependent expression of melanin-concentrating

RT hormone in mammalian germ cells."

RL Biol. Reprod. 54:1161-1172(1996).

CC -1- FUNCTION: MCH may act as a neurotransmitter or neuromodulator in a

CC broad array of neuronal functions directed toward the regulation

CC of goal-directed behavior, such as food intake, and general

CC arousal (By similarity).

CC -1- TISSUE SPECIFICITY: PREDOMINANTLY EXPRESSED IN HYPOTHALAMUS. ALSO

CC FOUND IN HEART, INTESTINE, SPLEEN AND TESTIS (SPERMATOGONIA, EARLY

CC SPERMATOCYTES AND SERTOLI CELLS). IN BRAIN ONLY MATURE MCH

CC AND NEI PEPTIDES ARE PRESENT. IN PERIPHERAL TISSUES A LARGE

CC PRODUCT, ENCOMPASSING THE NEI AND MCH DOMAINS OF THE PRECURSOR, IS

CC FOUND PREDOMINANTLY.

CC -1- DEVELOPMENTAL STAGE: EXPRESSION IS ENHANCED BETWEEN POSTNATAL DAYS

CC 10 AND 15.

CC -1- PTM: PRO-MCH IS PROCESSED DIFFERENTIALLY IN THE BRAIN AND IN

CC PERIPHERAL ORGANS PRODUCING TWO NEUROPEPTIDES: NEI AND MCH. A

CC THIRD PEPTIDE, NGE, MAY ALSO BE PRODUCED. PREFERENTIAL PROCESSING

CC IN NEURONS BY PROHORMONE CONVERTASE 2 (PC2) GENERATES NEI. MCH IS

CC GENERATED IN NEURONS OF THE LATERAL HYPOTHALMIC AREA BY SEVERAL

CC PROHORMONE CONVERTASES INCLUDING PC1/3, PC2 AND PCS/6.

CC -1- PTM: MCH IS A CYCLIC PEPTIDE.

CC -1- SIMILARITY: BELONGS TO THE MCH FAMILY.

CC MGI:97629; Pmch.

CC KW Cleavage on pair of basic residues; Hormone; Neuropeptide; Signal;

CC KW Amidation.

CC FT SIGNAL 1 21 POTENTIAL.

CC FT CHAIN 22 166 PRO-MCH.

CC FT PEPTIDE 110 129 NGE (POTENTIAL).

CC FT PEPTIDE 132 144 NEI (BY SIMILARITY).

CC FT PEPTIDE 148 166 MELANIN-CONCENTRATING HORMONE.

CC FT MOD_RES 144 144 AMIDATION (G-145 PROVIDE AMIDE GROUP)

CC FT DISULFID 154 163 BY SIMILARITY.

CC SO SEQUENCE 166 AA; 18645 MW; 13D102686660CA0D CRC64;

Query Match 100.0%; Score 95; DB 1; Length 166;
 Best Local Similarity 100.0%; Pred. NO. 1.7e-08;
 Matches 16; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 LRCMLGRVYRPMCV 16
 :|||||
 DB 151 LRCMLGRVYRPMCV 166

RESULT 4

MC1_ONCKE STANDARD; PRT; 132 AA.
 AC P19713; P01208;
 DT 01-FEB-1991 (Rel. 17, Created)
 DT 01-FEB-1991 (Rel. 17, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Pro-MCH 1 precursor [Contains: Neuropeptide-glutamic acid-valine (NEV)
 (Neuropeptide E-V); Melanin-concentrating hormone (MCH)].
 GN MCH1.
 OS Oncorhynchus keta (Chum salmon).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Actinopterygii; Neopterygii; Teleostei; Euteleostei;
 OC Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
 OX NCBI_TaxID=8019;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=90006787; PubMed=2792771;
 RA Takayama Y., Mada C., Kawachi H., Ono M.;
 RT "Structures of two genes coding for melanin-concentrating hormone of
 RT chum salmon."
 RL Gene 80:65-73(1989).
 RN [2]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=89138019; PubMed=2465207;
 RA Ono M., Mada C., Okawa I., Kawachi H.;
 RT "Structures of two kinds of mRNA encoding the chum salmon melanin-
 RT concentrating hormone."
 RL Gene 71:433-438(1988).
 RN [3]
 RP SEQUENCE OF 116-132.
 RX MEDLINE=94014069; PubMed=6621686;
 RA Kawachi H., Kawachi I., Tsubokawa M., Kishida M., Baker B.I.;
 RT "Characterization of melanin-concentrating hormone in chum salmon
 RT pituitaries."
 RL Nature 305:321-323(1983).
 CC -1- FUNCTION: PLAYS A ROLE IN SKIN PIGMENTATION BY ANTAGONIZING THE
 CC ACTION OF MELANOTROPIN ALPHA. INDUCES MELANIN CONCENTRATION WITHIN
 CC THE MELANOPHORES. MAY PARTICIPATE IN THE CONTROL OF THE
 CC HYPOTHALAMO-PITUITARY ADRENAL AXIS BY INHIBITING THE RELEASE
 CC OF ACTH.
 CC -1- TISSUE SPECIFICITY: PITUITARY GLAND. PRODUCED IN NEURONS OF
 CC LATERAL BASAL HYPOTHALAMUS WHICH PROJECT BOTH TO THE BRAIN AND TO
 CC THE NEURAL LOBE OF THE PITUITARY GLAND FROM WHERE MCH IS RELEASED.
 CC -1- SIMILARITY: BELONGS TO THE MELANIN-CONCENTRATING HORMONE FAMILY.
 CC -----
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 CC -----
 DR EMBL: M27873; AAA9418.1;
 DR EMBL: M23573; AAA9420.1;
 DR PIR: JS0782; MTOMIK.
 KM Cleavage on pair of basic residues; Hormone; Neuropeptide; Signal;
 KM Multigene family.
 FT SIGNAL 1 24
 FT CHAIN 25 132 PRO-MCH 1.
 FT PEPTIDE 101 113 NEV (POTENTIAL).
 FT PEPTIDE 116 132 MELANIN-CONCENTRATING HORMONE.
 FT DISULFID 120 129

FT CONFLICT 4 4 Y -> S (IN REF. 2).
 SQ SEQUENCE 132 AA; 14682 MW; CE9CF95292498738 CRC64;

Query Match 86.3%; Score 82; DB 1; Length 132;
 Best Local Similarity 80.0%; Pred. NO. 1.7e-06;
 Matches 12; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

OY 2 LRCMLGRVYRPMCV 16
 :|||||
 DB 118 LRCMLGRVYRPMCV 132

RESULT 5

MC1_ONCKI STANDARD; PRT; 132 AA.
 AC P56943;
 DT 30-MAY-2000 (Rel. 39, Created)
 DT 30-MAY-2000 (Rel. 39, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Pro-MCH 1 precursor [Contains: Neuropeptide-glutamic acid-valine (NEV)
 (Neuropeptide E-V); Melanin-concentrating hormone (MCH)].
 GN MCH1.
 OS Oncorhynchus kisutch (Coho salmon).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Actinopterygii; Neopterygii; Teleostei; Euteleostei;
 OC Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
 OX NCBI_TaxID=8019;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Nahan J., Presse F., Schoepfer R., Vale W.;
 RT "Identification of a single melanin-concentrating hormone messenger
 RT ribonucleic acid in Coho salmon: structural relatedness with
 RT ribonucleic acid."
 RL J. Neuroendocrinol. 3:173-183(1991).
 CC -1- FUNCTION: PLAYS A ROLE IN SKIN PIGMENTATION BY ANTAGONIZING THE
 CC ACTION OF MELANOTROPIN ALPHA. INDUCES MELANIN CONCENTRATION WITHIN
 CC THE MELANOPHORES. MAY PARTICIPATE IN THE CONTROL OF THE
 CC HYPOTHALAMO-PITUITARY ADRENAL AXIS BY INHIBITING THE RELEASE
 CC OF ACTH.
 CC -1- TISSUE SPECIFICITY: PITUITARY GLAND. PRODUCED IN NEURONS OF
 CC LATERAL BASAL HYPOTHALAMUS WHICH PROJECT BOTH TO THE BRAIN AND TO
 CC THE NEURAL LOBE OF THE PITUITARY GLAND FROM WHERE MCH IS RELEASED.
 CC -1- SIMILARITY: BELONGS TO THE MCH FAMILY.
 CC -----
 CC Cleavage on pair of basic residues; Hormone; Neuropeptide; Signal;
 KM Multigene family.
 FT SIGNAL 1 24
 FT CHAIN 25 132 PRO-MCH 1.
 FT PEPTIDE 101 113 NEV (POTENTIAL).
 FT PEPTIDE 116 132 MELANIN-CONCENTRATING HORMONE.
 FT DISULFID 120 129 BY SIMILARITY.
 FT DOMAIN 86 89 POLY-ALA.
 SQ SEQUENCE 132 AA; 14668 MW; 8B9348336EBB1A8 CRC64;
 Query Match 86.3%; Score 82; DB 1; Length 132;
 Best Local Similarity 80.0%; Pred. NO. 1.7e-06;
 Matches 12; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

OY 2 LRCMLGRVYRPMCV 16
 :|||||
 DB 118 LRCMLGRVYRPMCV 132

RESULT 6

MC1_ONCKY STANDARD; PRT; 132 AA.
 AC P33745;
 DT 01-FEB-1994 (Rel. 28, Created)
 DT 01-FEB-1994 (Rel. 28, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Pro-MCH 1 precursor [Contains: Neuropeptide-glutamic acid-valine (NEV)
 (Neuropeptide E-V); Melanin-concentrating hormone (MCH)].
 GN MCH1.
 OS Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).

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OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX NCBI_TaxID=8022;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=95249052; PubMed=7731499;
RA Baker B., Levy A., Hall L., Lightman S.;
RT "Cloning and expression of melanin-concentrating hormone genes in the
RT rainbow trout brain."
RL Neuroendocrinology 61:67-76(1995).
CC -1- FUNCTION: PLAYS A ROLE IN SKIN PIGMENTATION BY ANTAGONIZING THE
CC ACTION OF MELANOTROPIN ALPHA. INDUCES MELANIN CONCENTRATION WITHIN
CC THE MELANOPHORES. MAY PARTICIPATE IN THE CONTROL OF THE
CC HYPOTHALAMO-PITUITARY ADRENAL AXIS BY INHIBITING THE RELEASE
CC OF ACTH.
CC -1- TISSUE SPECIFICITY: PITUITARY GLAND. PRODUCED IN NEURONS OF
CC LATERAL BASAL HYPOTHALAMUS WHICH PROJECT BOTH TO THE BRAIN AND TO
CC THE NEURAL LOBE OF THE PITUITARY GLAND FROM WHERE MCH IS RELEASED.
CC -1- SIMILARITY: BELONGS TO THE MELANIN-CONCENTRATING HORMONE FAMILY.
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CC -----
DR EMBL; X73837; CAA52059.1; -
DR PIR; S34653; S34653.
KW Cleavage on pair of basic residues; Hormone; Neuropeptide; Signal;
KM Multigene family.
FT SIGNAL 1 24 BY SIMILARITY.
FT CHAIN 25 132 PRO-MCH 1.
FT PEPTIDE 101 113 NEV (POTENTIAL).
FT PEPTIDE 116 132 MELANIN-CONCENTRATING HORMONE.
FT DISULFID 120 129 BY SIMILARITY.
SQ SEQUENCE 132 AA; 14608 MW; ADFB644E14CEFD99 CRC64;

Query Match 86.3%; Score 82; DB 1; Length 132;
Best Local Similarity 80.0%; Pred. No. 1.7e-06;
Matches 12; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

OY 2 LRCLMGVYRPMQOV 16
DB 118 MRCWAGRYRPMQEV 132

RESULT 7
MCL_ONCTS STANDARD; PRT; 132 AA.
AC P17640;
DT 01-AUG-1990 (Rel. 15, Created)
DT 01-AUG-1990 (Rel. 15, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Pro-MCH 1 precursor [Contains: Neuropeptide-glutamic acid-valine (NEV)
DE (Neuropeptide E-V); Melanin-concentrating hormone (MCH)].
GN MCH1.
OS Oncorhynchus tshawytscha (Chinook salmon) (King salmon).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX NCBI_TaxID=74940;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=89264605; PubMed=2471200;
RA Mith C.A., Qiu H., Akli H., Watson S.J., Dixon J.E.;
RT "Two precursors of melanin-concentrating hormone: DNA sequence
RT analysis and in situ immunohistochemical localization."
RL Proc. Natl. Acad. Sci. U.S.A. 86:4292-4296(1989).
CC -1- FUNCTION: PLAYS A ROLE IN SKIN PIGMENTATION BY ANTAGONIZING THE
CC ACTION OF MELANOTROPIN ALPHA. INDUCES MELANIN CONCENTRATION WITHIN

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CC THE MELANOPHORES. MAY PARTICIPATE IN THE CONTROL OF THE
CC HYPOTHALAMO-PITUITARY ADRENAL AXIS BY INHIBITING THE RELEASE
CC OF ACTH.
CC -1- TISSUE SPECIFICITY: PITUITARY GLAND. PRODUCED IN NEURONS OF
CC LATERAL BASAL HYPOTHALAMUS WHICH PROJECT BOTH TO THE BRAIN AND TO
CC THE NEURAL LOBE OF THE PITUITARY GLAND FROM WHERE MCH IS RELEASED.
CC -1- SIMILARITY: BELONGS TO THE MELANIN-CONCENTRATING HORMONE FAMILY.
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CC -----
DR EMBL; M25755; AAA49423.1; -
DR PIR; B32910; B32910.
KW Cleavage on pair of basic residues; Hormone; Neuropeptide; Signal;
KM Multigene family.
FT SIGNAL 1 24
FT CHAIN 25 132 PRO-MCH 1.
FT PEPTIDE 101 113 NEV (POTENTIAL).
FT PEPTIDE 116 132 MELANIN-CONCENTRATING HORMONE.
FT DISULFID 120 129
SQ SEQUENCE 132 AA; 14657 MW; F2065B83AFAB46E5 CRC64;

Query Match 86.3%; Score 82; DB 1; Length 132;
Best Local Similarity 80.0%; Pred. No. 1.7e-06;
Matches 12; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

OY 2 LRCLMGVYRPMQOV 16
DB 118 MRCWAGRYRPMQEV 132

RESULT 8
MCL_ONCKE STANDARD; PRT; 132 AA.
AC P19714; P01208;
DT 21-JUL-1986 (Rel. 01, Created)
DT 01-JUL-1989 (Rel. 11, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Pro-MCH 2 precursor [Contains: Neuropeptide-glutamic acid-valine (NEV)
DE (Neuropeptide E-V); Melanin-concentrating hormone (MCH)].
GN MCH2.
OS Oncorhynchus keta (Chum salmon),
OS Oncorhynchus tshawytscha (Chinook salmon) (King salmon), and
OS Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX NCBI_TaxID=8018, 74940, 8022;
RN [1]
RP SEQUENCE FROM N.A.
RX SPECIES-O.keta; TISSUE-Brain;
RX MEDLINE=89263809; PubMed=2471156;
RA Nahan J.-L., Schoeffer R., Vale W.;
RT "cDNA sequence of salmon melanin-concentrating hormone exhibits
RT similarities with 7SL RNA."
RL Nucleic Acids Res. 17:3598-3598(1989).
RN [2]
RP SEQUENCE FROM N.A.
RX SPECIES-O.keta;
RX MEDLINE=90006787; PubMed=2792771;
RA Takayama Y., Mada C., Kawachi H., Ono M.;
RT "Structures of two genes coding for melanin-concentrating hormone of
RT chum salmon."
RL Gene 80:65-73(1989).
RN [3]
RP SEQUENCE FROM N.A.
RX SPECIES-O.keta;
RX MEDLINE=89138019; PubMed=2465207;

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RA Ono M., Wade C., Oikawa I., Kawazoe I., Kawachi H.;
 RT "Structures of two kinds of mRNA encoding the chum salmon melanin-
 RT concentrating hormone.";
 RL Gene 71:433-438(1988).
 RN [14]
 RP SEQUENCE FROM N.A.
 RC SPECIES-O. tshawytscha;
 RX MEDLINE-89264605; PubMed-2471200;
 RA Muth C.A., Olu H., Akil H., Watson S.J., Dixon J.E.;
 RT "Two precursors of melanin-concentrating hormone: DNA sequence
 RT analysis and in situ immunohistochemical localization.";
 RL Proc. Natl. Acad. Sci. U.S.A. 86:4292-4296(1989).
 RN [3]
 RP SEQUENCE FROM N.A.
 RC SPECIES-O. mykiss;
 RX MEDLINE-95249052; PubMed-7731499;
 RA Baker B., Levy A., Hall L., Lightman S.;
 RT "Cloning and expression of melanin-concentrating hormone genes in the
 RT rainbow trout brain.";
 RL Neuroendocrinology 61:67-76(1995).
 RN [6]
 RP SEQUENCE OF 116-132.
 RC SPECIES-O. keta;
 RX MEDLINE-84014069; PubMed-6621686;
 RA Kawachi H., Kawazoe I., Tsukakawa M., Kishida M., Baker B.I.;
 RT "Characterization of melanin-concentrating hormone in chum salmon
 RT pituitaries.";
 RL Nature 305:321-323(1983).
 CC -1- FUNCTION: PLAYS A ROLE IN SKIN PIGMENTATION BY ANTAGONIZING THE
 CC ACTION OF MELANOTROPIN ALPHA. INDUCES MELANIN CONCENTRATION WITHIN
 CC THE MELANOPHORES. MAY PARTICIPATE IN THE CONTROL OF THE
 CC HYPOTHALAMO-PITUITARY ADRENAL GLAND AXIS BY INHIBITING THE RELEASE
 CC OF ACTH.
 CC -1- TISSUE SPECIFICITY: PITUITARY GLAND. PRODUCED IN NEURONS OF
 CC LATERAL BASAL HYPOTHALAMUS WHICH PROJECT BOTH TO THE BRAIN AND TO
 CC THE NEURAL LOBE OF THE PITUITARY GLAND FROM WHERE MCH IS RELEASED.
 CC -1- SIMILARITY: BELONGS TO THE MELANIN-CONCENTRATING HORMONE FAMILY.
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 CC -----
 DR EMBL: X13685; CAA31978.1; -;
 DR EMBL: M23574; AAA49421.1; -;
 DR EMBL: M27871; AAA49419.1; -;
 DR EMBL: M25754; AAA49422.1; -;
 DR EMBL: X73838; CAA52060.1; -;
 DR PIR: J50283; MT0N2K.
 DR PIR: A32910; A32910.
 DR PIR: S04087; S04087.
 DR PIR: S34654; S34654.
 KW Cleavage on pair of basic residues; Hormone; Neuropeptide; Signal;
 KW Multigene family.
 FT SIGNAL 1 24
 FT CHAIN 25 132 PRO-MCH 2
 FT PEPTIDE 101 113 NEV (POTENTIAL).
 FT DISULFID 120 129 MELANIN-CONCENTRATING HORMONE.
 FT CONFLICT 107 108 SP -> NS (IN REF. 2).
 FT CONFLICT 107 107 S -> N (IN REF. 3).
 SQ SEQUENCE 132 AA: 14710 MW: AA55F456EA26FE4 CRC64;
 Query Match 86.3%; Score 82; DB 1; Length 132;
 Best Local Similarity 80.0%; Pred. No. 1.7e-06;
 Matches 12; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

RESULT 9
 ID MLC2_OREMO STANDARD; PRT; 136 AA.
 AC P49794;
 DT 01-OCT-1996 (Rel. 34, Created)
 DT 01-OCT-1996 (Rel. 34, Last sequence update)
 DT 15-OCT-2001 (Rel. 40, Last annotation update)
 DE PRO-MCH precursor [contains: Melanin-concentrating hormone (MCH)].
 OS Oreochromis mossambicus (Mozambique tilapia) (Tilapia mossambica).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
 OC Acanthomorpha; Acanthopterygii; Perciformes; Labroidae;
 OC Cichlidae; Oreochromis.
 OX NCBI_TaxID=8127;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-Hypothalamus;
 RA Gronqveld D., Hut M.J., Balm P.H.M., Martens G.J.M.,
 RT Wendelaar Bonga S.E.;
 RT "Cloning and sequence analysis of hypothalamus cDNA encoding tilapia
 RT melanin-concentrating hormone.";
 RL Fish Physiol. Biochem. 11:117-124(1993).
 CC -1- FUNCTION: PLAYS A ROLE IN SKIN PIGMENTATION BY ANTAGONIZING THE
 CC ACTION OF MELANOTROPIN ALPHA. INDUCES MELANIN CONCENTRATION WITHIN
 CC THE MELANOPHORES. MAY PARTICIPATE IN THE CONTROL OF THE
 CC HYPOTHALAMO-PITUITARY ADRENAL GLAND AXIS BY INHIBITING THE RELEASE
 CC OF ACTH.
 CC -1- SIMILARITY: BELONGS TO THE MELANIN-CONCENTRATING HORMONE FAMILY.
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 CC -----
 DR EMBL: X81144; CAA57050.1; -;
 KW Cleavage on pair of basic residues; Hormone; Neuropeptide; Signal.
 FT SIGNAL 1 20
 FT CHAIN 21 136 PRO-MCH.
 FT PEPTIDE 119 133 MELANIN-CONCENTRATING HORMONE.
 FT DISULFID 124 133 BY SIMILARITY.
 SQ SEQUENCE 136 AA: 15410 MW: 91EA3AE3B91500DD CRC64;
 Query Match 86.3%; Score 82; DB 1; Length 136;
 Best Local Similarity 80.0%; Pred. No. 1.7e-06;
 Matches 12; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

OY 2 LRCMLGRVTRPCMOV 16
 :|||:|||||||:|
 Db 122 MRCMGRVTRPCMEV 136

RESULT 10
 ID MLC2_HUMAN STANDARD; PRT; 78 AA.
 AC Q16046;
 DT 15-JUL-1999 (Rel. 38, Created)
 DT 15-JUL-1999 (Rel. 38, Last sequence update)
 DT 15-JUN-2002 (Rel. 41, Last annotation update)
 DE PRO-MCH variant (Fragment).
 GN PMCHL1.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 OX NCBI_TaxID=9606;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-Brain;
 RX MEDLINE-93316802; PubMed-8326825;

RA Breton C., Schorpp M., Nahon J.-L.;
 RT "Isolation and characterization of the human melanin-concentrating
 RL hormone gene and a variant gene." J. Biol. Chem. 268(1993):18297-18300.
 RN [2]
 RP EXPRESSION.
 RX MEDLINE=98398385; PubMed=9729295;
 RA Miller C.L., Burmeister M., Thompson R.C.;
 RT "Antisense expression of the human pro-melanin-concentrating hormone
 RL genes." J. Biol. Chem. 268(1993):18297-18300.
 CC -1- SIMILARITY: BELONGS TO THE MELANIN-CONCENTRATING HORMONE FAMILY.
 CC ACCORDING TO REF. 2 ONLY ANTISENSE PMCHL1 TRANSCRIPTS ARE PRESENT
 CC IN BRAIN.
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 CC -----
 CC EMBL; S64288; AAB37494.1;
 DR Genew; HGNC:9110; PMCHL1.
 DR MIR; 176793;
 FT NON_TER 1 1 NCE-LIKE.
 FT DOMAIN 23 41
 FT DOMAIN 44 56 NEI-LIKE.
 FT DOMAIN 60 78 MELANIN-CONCENTRATING HORMONE-LIKE.
 SO SEQUENCE 78 AA; 8774 MW; 52826A53D241355 CRC64;
 OY 2 LRCMLGRVRCPCMOY 16
 DB 64 LSCMLGRVRCPCMOY 78
 ID POLG_PSBMV STANDARD: PRT; 3206 AA.
 AC P29152;
 DT 01-DEC-1992 (Rel. 24, Created)
 DT 13-JUN-2002 (Rel. 41, Last sequence update)
 DE Genome polyprotein (contains: N-terminal protein (p1); Helper
 DE component proteinase (EC 3.4.22.45) (HC-Pro); Protein p3; 6 kDa
 DE protein 1 (p1); Cytoplasmic inclusion protein (CI); 6 kDa protein 2
 DE (p2); Genome-linked protein (VPG); Nuclear inclusion protein A (NI-A)
 DE (NI-A) (EC 3.4.22.44) (49 kDa proteinase) (49 kDa-Pro); Nuclear
 DE inclusion protein B (NI-B) (NI-B) (RNA-directed RNA polymerase) (EC
 DE 2.7.7.48); Coat protein (CP)).
 OS Pea seed-borne mosaic virus (strain DPM1).
 OC Viruses; ssRNA positive-strand viruses, no DNA stage; Potyviridae;
 OC Potyvirus.
 OX NCBI_TaxID=31736;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=92044431; PubMed=1940858;
 RA Johansen E., Rasmussen O.F., Heide M., Borkhardt B.;
 RT "The complete nucleotide sequence of pea seed-borne mosaic virus
 RL RNA." J. Gen. Virol. 72:2625-2632(1991).
 CC -1- FUNCTION: HELPER COMPONENT-PROTEINASE IS REQUIRED FOR APHID
 CC TRANSMISSION AND ALSO HAS PROTEOLYTIC ACTIVITY.
 CC -1- FUNCTION: CYTOPLASMIC INCLUSION PROTEIN HAS HELICASE ACTIVITY. IT
 CC MAY BE INVOLVED IN REPLICATION.
 CC -1- FUNCTION: NUCLEAR INCLUSION PROTEIN A HAS PROTEOLYTIC ACTIVITY.
 CC -1- CATALYTIC ACTIVITY: Hydrolyzes glutamyl bonds, and activity is

CC further restricted by preferences for the amino acids in p6 - p1'
 CC that vary with the species of potyvirus, e.g. Glu-Xaa-Tyr-Xaa-
 CC Gln+(Ser or Gly) for the enzyme from tobacco etch virus. The
 CC natural substrate is the viral polyprotein, but other proteins and
 CC oligopeptides containing the appropriate consensus sequence are
 CC also cleaved.
 CC -1- CATALYTIC ACTIVITY: N nucleoside triphosphate - N diphosphate +
 CC (RNA)(N).
 CC -1- CATALYTIC ACTIVITY: Hydrolyzes a Gly-I-Gly bond at its own C-
 CC terminus, commonly in the sequence -Tyr-Xaa-Val-Gly-I-Gly, in the
 CC processing of the polyviral polyprotein.
 CC -1- PPM: VPG IS COVALENTLY LINKED TO THE GENOMIC RNA.
 CC -1- PPM: THE VIRAL RNA OF POTYVIRUSES IS EXPRESSED AS A SINGLE
 CC POLYPROTEIN WHICH UNDERGOES POSTTRANSLATIONAL PROTEOLYTIC
 CC PROCESSING RESULTING IN THE PRODUCTION OF AT LEAST EIGHT
 CC INDIVIDUAL PROTEINS.
 CC -1- SIMILARITY: HC-PROTEINASE BELONGS TO PEPTIDASE FAMILY C6.
 CC -1- SIMILARITY: NI-A PROTEINASE BELONGS TO PEPTIDASE FAMILY C4.
 CC -1- SIMILARITY: BELONGS TO THE POTYVIRUSES POLYPROTEIN FAMILY.
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 CC -----
 CC EMBL; D10930; BAA01726.1;
 DR PIR; J01331; GNVSFV.
 DR MEROPS; C04.010; -.
 DR MEROPS; C06.001; -.
 DR InterPro: IPR001410; DEAD.
 DR InterPro: IPR001650; Helicase_C.
 DR InterPro: IPR001730; Peptidase_C4.
 DR InterPro: IPR001456; Peptidase_C6.
 DR InterPro: IPR002540; Poly_P1.
 DR InterPro: IPR001592; Poly_P1.
 DR InterPro: IPR001205; RNA_pol_P3D.
 DR InterPro: IPR001254; Ser-protease_Try.
 DR Pfam: PF00271; Helicase_C; 1.
 DR Pfam: PF00680; RNA_dep_RNA_pol; 1.
 DR Pfam: PF00767; Poly_coat; 1.
 DR Pfam: PF00851; Peptidase_C6; 1.
 DR Pfam: PF00863; Peptidase_C4; 1.
 DR Pfam: PF01577; Poly_P1; 1.
 DR PRINTS; PRO0966; NINAPOTYFAS.
 DR SMART; SM00487; DEXDC; 1.
 DR SMART; SM00490; HELIC_C; 1.
 DR Hydrolase; Transferase; Thiol protease; RNA-directed RNA polymerase;
 KW Coat protein; Polyprotein; Covalent protein-RNA linkage; Helicase;
 KW ATP-binding.
 FT CHAIN 1 856 N-TERMINAL PROTEIN.
 FT CHAIN 857 856 HELPER COMPONENT PROTEINASE.
 FT CHAIN 1267 1266 CYTOPLASMIC INCLUSION PROTEIN.
 FT CHAIN 1903 1902 6 KDA PROTEIN 1.
 FT CHAIN 1956 1955 6 KDA PROTEIN 2.
 FT CHAIN 2395 2395 GENOME-LINKED PROTEIN.
 FT CHAIN 2396 2395 NUCLEAR INCLUSION PROTEIN A.
 FT CHAIN 2915 3206 NUCLEAR INCLUSION PROTEIN B.
 FT CHAIN 1266 1267 COAT PROTEIN.
 FT SITE 1267 1267 CLEAVAGE (BY 49 KDA PROTEASE).
 FT SITE 1902 1903 CLEAVAGE (BY 49 KDA PROTEASE).
 FT SITE 1955 1956 CLEAVAGE (BY 49 KDA PROTEASE).
 FT SITE 2395 2396 CLEAVAGE (BY 49 KDA PROTEASE).
 FT SITE 2915 2916 CLEAVAGE (BY 49 KDA PROTEASE).
 FT SITE 2916 2916 COVALENT LINKAGE OF VIRAL RNA (BY
 FT SIMILARITY).
 FT NP_BIND 1351 1358 ATP (POTENTIAL).
 SO SEQUENCE 3206 AA; 364271 MW; 42A3D921BE9A0CB CRC64;
 Query Match 45.38; Score 43; DB 1; Length 3206;

Best Local Similarity 37.5%; Pred. No. 54;
Matches 6; Conservative 5; Mismatches 5; Indels 0; Gaps 0;
OY 1 MLCMGRVPCWQV 16
DB 436 ILAQLIVFPCWRI 451

RESULT 12

VGLE_PRIVI STANDARD; PRT: 577 AA.
AC P08354;
DT 01-AUG-1988 (Rel. 08, Created)
DT 01-AUG-1988 (Rel. 08, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Glycoprotein GI precursor.
OS Pseudorabies virus (strain R1ce) (PRV).
OC Viruses; dsDNA viruses; no RNA stage; Herpesviridae;
CC Alphaherpesvirinae; Varicellovirinae;
ON NCBI_Taxid=10350;
RX [1]
RP MEDLINE-86308235; PubMed-3018284;
RA Petrovskis E.A., Timmins J.G., Post L.E.;
RT "Use of lambda gill to isolate genes for two pseudorabies virus
RT glycoproteins with homology to herpes simplex virus and varicella-
RT zoster virus glycoproteins";
RL J. Virol. 60:185-193(1986).
CC -1- SIMILARITY: BELONGS TO THE HERPESVIRUSES GLYCOPROTEIN E FAMILY.
CC -----
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CC -----
CC EMBL; M14336; AAC35205.1; -
DR PIR; B29012; VGBEG1.
DR InterPro: IPR003404; Herpes_glycop.
DR Pfam: PF02480; Herpes_gf. 1.
KW Glycoprotein; Transmembrane; Signal.
FT SIGNAL 1 20
FT CHAIN 1 577 GLYCOPROTEIN GI.
FT CARBOHYD 87 87 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 93 93 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 183 183 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 258 258 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 343 343 N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ SEQUENCE 577 AA; 62325 MW; AD91P9CCBBDEDA69 CRC64;

Query Match 44.2%; Score 42; DB 1; Length 577;
Best Local Similarity 63.6%; Pred. No. 17;
Matches 7; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

OY 3 RCMGGRVPCWQV 13
DB 273 RCLLYVYVPC 283

RESULT 13

VF93_MOUSE STANDARD; PRT: 645 AA.
AC Q61116;
DT 16-OCT-2001 (Rel. 40, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Zinc finger protein 93 (Zfp-93).
GN ZFP93.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

OX NCBI_Taxid=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-CD-1; TISSUE-Testis;
RX MEDLINE-96207307; PubMed-8617494;
RA Shannon M., Ashworth L.K., Mucenski M.L., Lamerdin J.E., Branscomb E.,
RA Stubbs L.;
RT "Comparative analysis of a conserved zinc finger gene cluster on human
RT chromosome 19q and mouse chromosome 7.";
RL Genomics 33:112-120(1996).
CC -1- FUNCTION: MAY FUNCTION AS A TRANSCRIPTION FACTOR.
CC -1- SUBCELLULAR LOCATION: Nuclear (probable).
CC -1- SIMILARITY: BELONGS TO THE KRUEPPEL FAMILY OF C2H2-TYPE ZINC-
CC FINGER PROTEINS.
CC -----
CC -1- SIMILARITY: CONTAINS 1 KRAB DOMAIN.
CC -----
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CC -----
CC EMBL; U46186; AAB03529.1; -
DR HSSP: P25490; 1ZNM.
DR MGD: MGI:107611; Zfp93.
DR InterPro: IPR001909; KRAB.
DR InterPro: IPR000822; Znf_C2H2.
DR Pfam: PF00096; Zf-C2H2; 13.
DR Pfam: PF01352; KRAB; 1.
DR PRINTS: PR00048; ZINC_FINGER.
DR PRODOM: P000003; Znf_C2H2; 11.
DR SMART: SM00349; KRAB; 1.
DR SMART: SM00355; Znf_C2H2; 13.
DR PROSITE: PS00805; KRAB; 1.
DR PROSITE: PS00028; ZINC_FINGER_C2H2_2; 13.
DR PROSITE: PS0157; ZINC_FINGER_C2H2_2; 13.
KW Transcription regulation; DNA-binding; Zinc-finger; Metal-binding;
KW Nuclear protein; Repeat.
FT DOMAIN 8 86 KRAB.
FT DOMAIN 285 285 ZINC_FINGERS.
FT ZN_FING 285 307 C2H2-TYPE.
FT ZN_FING 313 335 C2H2-TYPE.
FT ZN_FING 341 363 C2H2-TYPE.
FT ZN_FING 369 391 C2H2-TYPE.
FT ZN_FING 397 419 C2H2-TYPE.
FT ZN_FING 425 447 C2H2-TYPE.
FT ZN_FING 453 475 C2H2-TYPE.
FT ZN_FING 481 503 C2H2-TYPE.
FT ZN_FING 509 531 C2H2-TYPE.
FT ZN_FING 537 559 C2H2-TYPE.
FT ZN_FING 565 587 C2H2-TYPE.
FT ZN_FING 593 615 C2H2-TYPE.
FT ZN_FING 621 643 C2H2-TYPE.
SQ SEQUENCE 645 AA; 73012 MW; 7459CD140F5AFA69 CRC64;

Query Match 43.7%; Score 41.5; DB 1; Length 645;
Best Local Similarity 50.0%; Pred. No. 23;
Matches 8; Conservative 5; Mismatches 0; Indels 3; Gaps 2;

OY 2 LRGM-LGRVPCWQV 16
DB 63 IRCLPLGQL-PCWQW 76

RESULT 14

CD59_RABIT STANDARD; PRT: 124 AA.
AC Q77541;
DT 16-OCT-2001 (Rel. 40, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)

DE CD59 glycoprotein precursor (Membrane attack complex inhibition
DE factor) (MacIF) (Mac-inhibitory protein) (Mac-IP) (Protectin).
GN CD59.
OS Oryctolagus cuniculus (Rabbit).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
OX NCBI_TaxID=9986;
RN [1]
RP SEQUENCE FROM N.A. AND SEQUENCE OF 25-64.
RC TISSUE=Lymphocyte, and Erythrocyte;
RX MEDLINE=98221206; PubMed=9553129;
RA Zhao X.-J., Zhou J., Zhou Q., Sims P.J.;
RT "Identity of the residues responsible for the species-restricted
RT complement inhibitory function of human CD59.";
RL J. Biol. Chem. 273:10665-10671(1998).
CC -1- FUNCTION: POTENT INHIBITOR OF THE COMPLEMENT MEMBRANE ATTACK
CC COMPLEX (MAC) ACTION. ACTS BY BINDING TO THE C8 AND/OR C9
CC INCORPORATION OF THE MULTIPLE COPIES OF C9 REQUIRED FOR COMPLETE
CC FORMATION OF THE OSMOTIC PORE.
CC -1- SUBCELLULAR LOCATION: Attached to the membrane by a GPI-anchor (By
CC similarity).
CC -1- MISCELLANEOUS: THE MATURE FORM OF THIS CD59 CONTAINS AN ADDITIONAL
CC SERINE RESIDUE BEFORE THE CONSERVED N-TERMINAL LEUCINE RESIDUE
CC FOUND IN ALL OTHER CD59 HOMOLOGS SEQUENCED TO DATE.
CC -1- SIMILARITY: CONTAINS 1 UPAR/LY6 DOMAIN.
CC -----
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CC -----
DR EMBL: AF040387; AAC35390.1; -;
DR HSSP: P13987; 1ERG.
DR InterPro: IPR001526; LY6_UPAR.
DR InterPro: IPR003632; LY-6_CD59.
DR Pfam: PF000021; UPAR_LY6; 1.
DR ProDom: PD003128; LY-6_CD59; 1.
DR SMART: SM00134; LU; 1.
DR PROSITE: PS00983; LY6_UPAR; FALSE_NEG.
KW Antigen; Glycoprotein; GPI-anchor; Signal.
FT SIGNAL 1 24
FT CHAIN 25 101 CD59 GLYCOPROTEIN.
FT PROPEP 102 124 REMOVED IN MATURE FORM (BY SIMILARITY).
FT DOMAIN 25 101 UPAR/LY6.
FT DISULFID 28 51 BY SIMILARITY.
FT DISULFID 31 38 BY SIMILARITY.
FT DISULFID 44 64 BY SIMILARITY.
FT DISULFID 70 88 BY SIMILARITY.
FT DISULFID 89 94 BY SIMILARITY.
FT CARBOHYD 37 37 N-LINKED (GLCNAC...) (POTENTIAL).
FT LIPID 101 101 GPI-ANCHOR (BY SIMILARITY).
SQ SEQUENCE 124 AA; 13870 MW; 13870 MW; CEAF4C816772CAED CRC64;

Query Match 43.28; Score 41; DB 1; Length 124;
Best Local Similarity 75.08; Pred. No. 6.4;
Matches 6; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 8 RYVRPCWQ 15
Db 59 RYVRPCWR 66

RESULT 15
ID ISTR_SHISO STANDARD; PRT; 315 AA.
AC P16944;
DT 01-AUG-1990 (Rel. 15, Created)
DT 01-AUG-1990 (Rel. 15, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)

DE Transposase for insertion sequence element IS640.
GN ISTR.
OS Shigella sonnei.
OC Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
OC Shigella.
OX NCBI_TaxID=624;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=88062685; PubMed=2824781;
RA Matsutani S., Ohtsuo H., Maeda Y., Ohtsuo E.;
RT "Isolation and characterization of IS elements repeated in the
RT bacterial chromosome.";
RL J. Mol. Biol. 196:445-455(1987).
CC -1- FUNCTION: INVOLVED IN THE TRANSPOSITION OF THE INSERTION
CC SEQUENCE.
CC -1- SIMILARITY: BELONGS TO THE IS21/IS408/IS162 FAMILY OF
CC TRANSPOSASES.
CC -----
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CC -----
DR EMBL: X05956; CA29390.1; -;
DR PIR: S03416; S03416.
DR InterPro: IPR001584; Rve.
DR Pfam: PF00665; rve; 1.
DR KMW TRANSPOSABLE ELEMENT; Transposition; DNA-binding; DNA recombination.
SQ SEQUENCE 315 AA; 37544 MW; DB92FEC6777DID42 CRC64;

Query Match 43.28; Score 41; DB 1; Length 315;
Best Local Similarity 54.58; Pred. No. 15;
Matches 6; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

Search completed: June 25, 2003, 11:54:39
Job time : 10.92 secs

QY 4 CMLGRVTRPCW 14
Db 305 CVLGGOLYRGWV 315